DETAILED ACTION

1. Attorney Paul Rauch calls today 18 February 2010 pointing the **incorrect reference number** to Sheer I made in the final Office action dated 18 September 2009 and requests a new final Office action with correct reference number to Sheer I and with a new period for response. This is found persuasive and the following corrective action is taken.

The **finality** of the final Office action dated 18 September 2009 is **withdrawn**, the **amendment after final** dated 14 January 2010 is **not entered**, and **a new Office action** is made **final with a new period for response**.

Response to Amendment

2. The amendment of 10 June 2009 has been entered. Claim 2 has been amended and claims 4 and 7 have been cancelled. Claims 9-22 have been added. Claims 2, 3, 5, 6 and 9-22 are pending in this application with claims 2 and 14 being independent claims.

Election/Restrictions

3. Newly submitted claims 14-22 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 14-22 are drawn to a process with the step of generating plasma using a transferred electric arc

while the examined claims in the last Office action are drawn to a process with the step of generating a plasma using a free-burning electric arc. The steps are mutually exclusive.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, new claims 14-22 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

4. Applicant's arguments with respect to claims 2, 3, 5, 6 and 9-13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 2, 3, 6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,900,762 to Sheer et al. (hereinafter Sheer **I**) in view of US 4,181,704 to Sheer et al. (hereinafter Sheer **II**), both references cited in the last Office action . Sheer I's invention is directed to a method for producing chemical and physical changes in substances by exposure of reactive materials to direct current electric arcs where the

materials are exposed to a high energy region of a conduction column of a free-burning electric arc (c. 1, l. 10-16). Sheer I discloses that the process comprises the steps of generating a plasma using the free-burning electric arc; introducing reactive materials which may be gases or condensed phase materials entrained in gases by injection into an "injection window" of the arc to vaporize the materials; and subsequently quenching the vaporized materials to provide submicron size particles (Example and c. 4, l. 31-45). Sheer I also discloses there an example of using a metal oxide in a reactive gas. The difference between Sheer I and claim 1 is the detailing of an oxidizing gas as the reactive gas. Sheer II teaches in a process for the removal of sulfurous gases from high temperature products of chemical processes similar steps as Sheer I prior to combining the quenched vaporized materials of metal oxides with the sulfurous gases, where the reactive gases are such as air (an oxidizing gas) or hydrogen (c. 3, l. 19 though c. 4, l. 4 and Example). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Sheer I's as shown by Sheer II because the selection of reactive gases such as air to be entrained with the condensed phase materials would have been within the skill of ordinary skill in the art. The same selection is applied to claim 12 to the recited material.

As to the subject of matter of claim 13, it is inherently in the combined references process.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheer I as modified by Sheer II as applied to claims 2, , 3, 6 and 9-13 and further in view of GB 2,359,096 A issued to Deegan et al. The difference between the references as applied above and the instant claim is the provision that the introducing step into the current carrying region of the anodic column of the free-burning electric arc. Deegan, another reference cited in the last Office action, teaches in a plasma reactor for the production of fine powder that the polarities of the electrode may be reversed (p. 9, l. 6-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' method such that the plasma is generated from a free-burning electric arc with the polarity reversed, as per the teachings of Deegan. One skilled in the art would have been motivated to make such a modification because the selection of any of known equivalent electric arcs for the generating of plasma would have been within the level of ordinary skill in the art.

Response to Arguments

8. Applicant's arguments filed 10 June 2009 have been fully considered but they are not persuasive because of the new ground of rejections asset forth in the paragraphs above.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/
Primary Examiner, Art Unit 1795